LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method for detecting a target nucleic acid in a nucleic acid containing sample comprising:

(a) contacting the target nucleic acid with a circular oligonucleotide probe under conditions that allow hybridization between complementary sequences in the target nucleic acid and the circular oligonucleotide probe;

(b) adding at least one forward primer comprising a sequence complementary to a portion of the circular oligonucleotide probe, under conditions where the forward primer is extended around the ~~circle~~ circular oligonucleotide probe for multiple revolutions to form a single-stranded DNA molecule of repeating units complementary to the sequence of the circular probe;

(c) adding at least one oligonucleotide primer pair comprising a first primer and a second primer, wherein

(i) the first primer of the pair comprises (A) a first sequence on its 3' end that is substantially identical to a portion of the circular oligonucleotide probe, (B) a second sequence that is complementary to the second primer of the pair, and (C) a signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent;

(ii) the second primer of the pair comprises (A) a sequence that is complementary to the first primer and (B) a moiety capable of quenching, masking or inhibiting

the activity of the signal generating moiety when located adjacent to, or in close proximity to the signal generating moiety; and

(iii) when the first primer and the second primer are bound to one another, the signal is inhibited;

(d) adding at least one reverse primer comprising a sequence that is substantially identical to a portion of the circular oligonucleotide probe;

(e) adding a DNA polymerase; and

(f) amplifying the circular oligonucleotide probe thus producing an amplification product comprising a sequence that is substantially identical to a sequence in the circular probe, and separating the signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent and the quenching, masking or inhibitory moiety to generate a signal, wherein detection ~~thereof~~ of the signal indicates the presence of the target nucleic acid in the nucleic acid containing sample.

2. (currently amended) The method of claim 1, whereby the circular oligonucleotide probe is formed by ligating the 3' and 5' ends of a linear oligonucleotide probe, comprising 3' and 5' regions complementary to adjacent sequences in the target nucleic acid under conditions that allow hybridization between complementary sequences in the target nucleic acid and the linear oligonucleotide probe, whereupon binding to the target nucleic acid, the 3' and 5' ends of the linear oligonucleotide probe are adjacent to each other such that ligation of the 3' and 5' ends of the linear oligonucleotide probe form the circular oligonucleotide probe.

3. (previously presented) The method of claim 1, wherein the sequence of the reverse primer is SEQ ID NO: 49.

4. (previously presented) The method of claim 1, wherein the sequence of the first primer of the oligonucleotide primer pair is SEQ ID NO: 43 and the sequence of the second primer of the oligonucleotide primer pair is SEQ ID NO: 44.

5 – 7. (cancelled)

8. (currently amended) The method of claim 1, wherein the circular oligonucleotide probe is amplified using an amplification method selected from the group consisting of polymerase chain reaction, strand displacement amplification, transcription mediated amplification, ~~RAM~~ ramification-extension amplification method and primer extension.

9. (currently amended) The method of claim 8, wherein the amplification method is ~~RAM~~ ramification-extension amplification method.

10 - 12. (cancelled)

13. (currently amended) A method for detecting a target nucleic acid in a nucleic acid containing sample comprising:

(a) contacting the target nucleic acid with a circular oligonucleotide probe under conditions that allow hybridization between complementary sequences in the target nucleic acid and the circular oligonucleotide probe;

(b) adding at least one first oligonucleotide primer pair comprising a first primer and a second primer, under conditions where the primer pair is extended around the ~~circle~~

circular oligonucleotide probe for multiple revolutions to form a single-stranded DNA molecule of repeating units complementary to the sequence of the circular oligonucleotide probe, wherein

(i) the first primer of the first primer pair comprises (A) a first sequence on its 3' end that is complementary to a portion of the circular oligonucleotide probe, (B) a second sequence that is complementary to the second primer of the first primer pair, and (C) a signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent;

(ii) the second primer of the pair comprises (A) a sequence that is complementary to the first primer of the first primer pair and (B) a moiety capable of quenching, masking or inhibiting the activity of the signal generating moiety when located adjacent to, or in close proximity to the signal generating moiety; and

(iii) when the first primer and the second primer of the first primer pair are bound to one another, the signal is inhibited;

(c) adding at least one second oligonucleotide primer pair comprising a first primer and a second primer of the second primer pair, wherein

(i) the first primer of the second primer pair comprises (A) a first sequence on its 3' end that is substantially identical to a portion of the circular oligonucleotide probe, (B) a second sequence that is complementary to the second primer of the second primer pair, and (C) a signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent; and

(ii) the second primer of the second primer pair comprises (A) a sequence that is complementary to the first primer of the second primer pair and (B) a moiety capable of quenching, masking or inhibiting the activity of the signal generating moiety when located adjacent to, or in close proximity to the signal generating moiety;

(d) adding a DNA polymerase lacking 3' to 5' exonuclease activity; and

(e) amplifying the circular oligonucleotide probe thus producing an amplification product comprising a sequence that is substantially identical to a sequence in the circular oligonucleotide probe, and separating the signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent and the quenching, masking or inhibitory moiety to generate a signal, wherein detection ~~thereof~~ of the signal indicates the presence of the target nucleic acid in the nucleic acid containing sample.

14. (previously presented) The method of claim 13, whereby the circular oligonucleotide probe is formed by ligating the 3' and 5' ends of a linear oligonucleotide probe, comprising 3' and 5' regions complementary to adjacent sequences in the target nucleic acid under conditions that allow hybridization between complementary sequences in the target nucleic acid and the linear oligonucleotide probe, whereupon binding to the target nucleic acid, the 3' and 5' ends of the linear oligonucleotide probe are adjacent to each other such that ligation of the 3' and 5' ends of the linear oligonucleotide probe form the circular oligonucleotide probe.

15 - 17. (cancelled)

18. (currently amended) The method of claim 13, wherein the circular oligonucleotide probe is amplified using an amplification method selected from the group consisting of polymerase chain reaction, strand displacement amplification, transcription mediated amplification, ~~RAM~~ ramification-extension amplification method and primer extension.

19. (currently amended) The method of claim 18, wherein the amplification method is ~~RAM~~ ramification-extension amplification method.

20 - 22. (cancelled)

23. (currently amended) A method for detecting a target nucleic acid in a nucleic acid containing sample comprising:

(a) contacting the target nucleic acid with a circular oligonucleotide probe under conditions that allow hybridization between complementary sequences in the target nucleic acid and the circular oligonucleotide probe;

(b) adding at least one multiple oligonucleotide primer complex comprising a first primer, a second primer and a third primer, under conditions where the multiple oligonucleotide primer complex is extended around the ~~circle~~ circular oligonucleotide probe for multiple revolutions to form a single-stranded DNA molecule of repeating units complementary to the sequence of the circular oligonucleotide probe, wherein

(i) the first primer of the multiple oligonucleotide primer complex comprises (A) a first sequence on its 3' end that is complementary to a portion of the circular oligonucleotide probe, (B) a second sequence that is complementary to the second primer of the multiple oligonucleotide primer complex, and (C) a third sequence

that is complementary to the third primer of the multiple oligonucleotide primer complex;

(ii) the second primer of the multiple oligonucleotide primer complex comprises (A) a sequence that is complementary to the second sequence of the first primer of the multiple oligonucleotide primer complex and (B) a signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent;

(iii) the third primer of the multiple oligonucleotide primer complex comprises (A) a sequence that is complementary to the third sequence of the first primer of the multiple oligonucleotide primer complex and (b) a moiety capable of quenching, masking or inhibiting the activity of the signal generating moiety when located adjacent to, or in close proximity to the signal generating moiety; and

(iv) when the first, second and third primers of the multiple oligonucleotide primer complex are bound to one another, the signal is inhibited;

(c) adding at least one reverse primer comprising a sequence that is substantially identical to a portion of the circular oligonucleotide probe;

(d) adding a DNA polymerase lacking 3' to 5' exonuclease activity; and

(e) amplifying the circular oligonucleotide probe thus producing an amplification product comprising a sequence that is substantially identical to a sequence in the circular oligonucleotide probe, and separating the signal generating moiety and the quenching,

masking or inhibitory moiety to generate a signal, wherein detection ~~thereof~~ of the signal indicates the presence of the target nucleic acid in the nucleic acid containing sample.

24. (currently amended) The method of claim 23, whereby the circular oligonucleotide probe is formed by ligating the 3' and 5' ends of a linear oligonucleotide probe, comprising 3' and 5' regions complementary to adjacent sequences in the target nucleic acid under conditions that allow hybridization between complementary sequences in the target nucleic acid and the linear oligonucleotide probe, whereupon binding to the target nucleic acid, the 3' and 5' ends of the linear oligonucleotide probe are adjacent to each other such that ligation of the 3' and 5' ends of the linear oligonucleotide probe form the circular oligonucleotide probe.

25 - 27. (cancelled)

28. (currently amended) The method of claim 23, wherein the circular oligonucleotide probe is amplified using an amplification method selected from the group consisting of polymerase chain reaction, strand displacement amplification, transcription mediated amplification, ~~RAM~~ ramification-extension amplification method and primer extension.

29. (currently amended) The method of claim 28, wherein the amplification method is ~~RAM~~ ramification-extension amplification method.

30 - 32. (cancelled)

33. (currently amended) A method for detecting a target nucleic acid in a nucleic acid containing sample comprising:

(a) contacting the target nucleic acid with a circular oligonucleotide probe under conditions that allow hybridization between complementary sequences in the target nucleic acid and the circular oligonucleotide probe;

(b) adding at least one forward primer comprising a sequence that is complementary to a portion of the circular oligonucleotide probe, under conditions where the forward primer is extended around the ~~circle~~ circular oligonucleotide probe for multiple revolutions to form a single-stranded DNA molecule of repeating units complementary to the sequence of the circular oligonucleotide probe;

(c) adding at least one multiple oligonucleotide primer complex comprising a first primer, a second primer and a third primer, wherein

(i) the first primer of the multiple oligonucleotide primer complex comprises (A) a first sequence on its 3' end that is substantially identical to a portion of the circular oligonucleotide probe, (B) a second sequence that is complementary to the second primer of the pair, and (C) a third sequence that is complementary to the third primer of the multiple oligonucleotide primer complex;

(ii) the second primer of the multiple oligonucleotide primer complex comprises (A) a sequence that is complementary to the second sequence of the first primer of the multiple oligonucleotide primer complex and (B) a signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent;

(iii) the third primer of the multiple oligonucleotide primer complex comprises (A) a sequence that is complementary to the third sequence of the first primer of the multiple oligonucleotide primer complex and (b) a moiety capable of quenching, masking or inhibiting the activity of the signal generating moiety when located adjacent to, or in close proximity to the signal generating moiety; and

(iv) when the first, second and third primers of the multiple oligonucleotide primer complex are bound to one another, the signal is inhibited; and

(d) adding a DNA polymerase lacking 3' to 5' exonuclease activity; and

(e) amplifying the circular oligonucleotide probe thus producing an amplification product comprising a sequence that is substantially identical to a sequence in the circular oligonucleotide probe, and separating the signal generating moiety and the quenching, masking or inhibitory moiety to generate a signal, wherein detection ~~thereof~~ of the signal indicates the presence of the target nucleic acid in the nucleic acid containing sample.

34. (currently amended) The method of claim 33, whereby the circular oligonucleotide probe is formed by ligating the 3' and 5' ends of a linear oligonucleotide probe, comprising 3' and 5' regions complementary to adjacent sequences in the target nucleic acid under conditions that allow hybridization between complementary sequences in the target nucleic acid and the linear oligonucleotide probe, whereupon binding to the target nucleic acid, the 3' and 5' ends of the linear oligonucleotide probe are adjacent to each other such that ligation of the 3' and 5' ends of the linear oligonucleotide probe form the circular oligonucleotide probe.

35 - 37. (cancelled)

38. (currently amended) The method of claim 33, wherein the circular oligonucleotide probe is amplified using an amplification method selected from the group consisting of polymerase chain reaction, strand displacement amplification, transcription mediated amplification, ~~RAM~~ ramification-extension amplification method and primer extension.

39. (currently amended) The method of claim 38, wherein the amplification method is ~~RAM~~ ramification-extension amplification method.

40 - 42. (cancelled)

43. (currently amended) A method for amplifying a circular nucleic acid sequence, said method comprising:

(a) contacting the circular nucleic acid sequence with at least one forward primer comprising a sequence complementary to a portion of the circular nucleic acid sequence, under conditions where the forward primer is extended around the ~~circle~~ circular nucleic acid sequence for multiple revolutions to form a single-stranded DNA molecule of repeating units complementary to the sequence of the circular nucleic acid sequence;

(b) adding at least one oligonucleotide primer pair comprising a first primer and a second primer, wherein

(i) the first primer of the pair comprises (A) a first sequence on its 3' end that is substantially identical to a portion of the circular nucleic acid sequence, and (B) a second sequence that is complementary to the second primer of the pair;

(ii) the second primer of the pair comprises a sequence that is complementary to the first primer of the pair;

(c) adding at least one reverse primer comprising a sequence that is substantially identical to a portion of the circular ~~oligonucleotide~~ nucleic acid sequence;

(d) adding a DNA polymerase; and

(e) amplifying the circular nucleic acid sequence thus producing an amplification product comprising a sequence that is substantially identical to a sequence in the circular nucleic acid sequence.

44. (currently amended) The method of claim 43, wherein the first primer of the primer pair further comprises a signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent, the second primer of the primer pair further comprises a moiety capable of quenching, masking or inhibiting the activity of the signal generating moiety when located adjacent to, or in close proximity to the signal generating moiety, and when the first primer and the second primer of the primer pair are bound to one another, the signal is inhibited.

45. (currently amended) The method of claim 44, said method further comprising:

contacting the circular nucleic acid sequence to a target nucleic acid under conditions that allow hybridization between complementary sequences in the target nucleic acid, wherein the amplification of the circular nucleic acid sequence separates the signal generating moiety selected from the group consisting of a fluorescent agent and a chemiluminescent agent of the first primer and the quenching, masking or inhibitory moiety of the second

primer to generate a signal, wherein detection ~~thereof~~ of the signal indicates the presence of the target nucleic acid.

46 - 55. (cancelled)